FHWA Workshop over the Web for Travel Model Development Session 3 Homework

Estimating a Non-Logit Model

Total Time Required: 35-40 Minutes

In this exercise, we will work with a real survey data set to estimate a time-of-day (TOD) factor model by purpose and interpret the TOD factors.

Please download the MS Excel file "***Homework 3.xls***". The worksheets ***Trips*** and ***Trip Data Dictionary*** should look familiar to you by now. These are exactly the same data that you worked with in the last session. In addition, you will see two other worksheets named ***Exercise*** and ***Charts.*** The ***Charts*** worksheet has a bunch of empty plots, which will get updated once we populate the empty, gray table in the ***Exercise*** worksheet.

The focus of this exercise is to use the trip data to develop time-of-day factors. You will need to go through the following steps

- Click on the worksheet named ***Exercise.*** You will see an empty, gray table that will need to be populated with a cross-tabulation of trips by TOD and purpose.

- Go ahead and click anywhere on this table. You will see a small menu called "PivotTable Field List" pop up to the right of the table. We will use this menu to populate our empty table.

- Using your mouse, scroll down the menu and select the field ***Hour.***

- Click on this item and drag it into the **left-most column** of the empty table. You should now see hours 0 through 23 in the left most column.

- Next, go back to the menu and scroll once again until you find the field ***Purpose.*** Click, drag, and drop the Purpose field into the **top-most row** of the table. You should now see purposes 1 through 9 in the top-most row.

- Now, for the final part. Go back to the menu and scroll to the field named ***WEIGHT***. Drag and drop this item into the middle of the empty table. You should now see that the table is populated with a cross-tabulation of trips by TOD and purpose.

- Once you complete these steps, you will see that the table named ***"Table 2. Percentage of Trips by Time of Day and Purpose"*** and will be populated automatically.

- Also, please click on the ***Charts*** worksheet to make sure that the previously empty charts have now been updated.

- Table 2 represents a simple factor method for modeling time of day. For each trip purpose, Table 2 tells us how the daily travel demand can be apportioned to various one-hour intervals.

Questions for Homework

Use the data in Table 2 and the Charts to answer the following questions:

- Identify the AM and PM peak hours for each purpose. That is, identify the one-hour time slots in the morning and evening time periods with the highest percentage of trips.

- Compare the peaking patterns of the journey-to-work and home-based school trips shown in the worksheet ***Charts.*** Do these peaking patterns make sense?

- Now compare the peaking patterns of the journey-to-work and home-based shopping trips. What do you observe? Is this consistent with your knowledge of these two types of trips?

- Analyze the peaking pattern of the non home-based work trips. What do you observe? What do you think is the reason for the peaking pattern?

- In many travel demand models, modelers define so-called peak periods. These are usually defined as AM peak, PM peak or Off-peak. Note that these periods are usually not one-hour periods, but span a larger time frame. Looking at Chart 1 in the worksheet ***Charts,*** define the AM peak period, PM peak period and the Off-peak period.